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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,461	11/20/2003	Francois Kubica	245494US41X DIV	6844

22850 7590 03/26/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
BEHNCKE, CHRISTINE M	
ART UNIT	PAPER NUMBER
3661	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
2 MONTHS	03/26/2007	ELECTRONIC

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/716,461
Filing Date: November 20, 2003
Appellant(s): KUBICA, FRANCOIS

Edward Tracy
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11 December 2006 appealing from the Office action mailed 25 July 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 3, 7-11, 13, 26, and 28-30.

Claims 2, 4-6, 12, 14-25, and 27 have been canceled.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,774,818	Pages	6-1998
6,003,811	Trikha	12-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 6-13, 16, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pages, US Patent No. 5,774,818, in view of Trikha, US Patent No. 6,003,811.

(**Claims 1 and 13**) Pages discloses a method for operating an aircraft, comprising the steps of: receiving guidance instructions and guidance parameters at a navigation computer (computer 12, Column 5, lines 26-35); transmitting automatic pilot instructions from said navigation computer to a flight control computer (PA 13, Column 5, lines 43-46) over a dedicated communication link (figure 4); receiving control instructions and said automatic pilot instructions at said flight control computer (Column 5, lines 43-46). Pages discloses computing a plurality of operating commands at the flight control computer but does not explicitly disclose wherein a first plurality or a second plurality of operating commands are generated specifically in automatic or

manual modes. However, Trikha teaches in the prior art in an automatic pilot mode, generating a first plurality of operating commands based on the automatic instructions at said flight control computer; in manual mode, generating a second plurality of operating commands based on the control instructions at the flight control computer (Column 3, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pages with the teachings of Trikha to illustrate the principle components of a fly-by-wire aircraft control system wherein the flight control computer generates the operating commands based on the automatic pilot instructions of the manual instructions of the pilot.

(**Claim 3**) Pages, in view of Trikha, discloses the method previously discussed, Pages further discloses the step of receiving control parameters at the flight control computer (figure 4, Column 5, lines 26-46)

(**Claim 7**) Pages further discloses wherein the step of generating the automatic pilot instructions at the navigation computer based on the guidance instructions and on guidance parameters (Column 5, lines 26-35).

(**Claim 8**) Pages in view of Trikha discloses the method previously discussed, both Pages and Trikha further teach wherein the automatic pilot instructions correspond in nature to the control instructions (Pages: Column 5, lines 12-17; Trikha: Column 3, lines 7-24).

(**Claims 9-11**) Pages in view of Trikha discloses the method previously discussed; Pages and Trikha teach the transmitted automatic/control instructions include desired change in the aircraft's flight path (Pages: Column 5, lines 43-46;

Trikha: Column 3, lines 7-24). It is well known in the art that the parameters corresponding to a vertical load factor, roll rate, and yaw are specifically used to designate and change the flight path. These parameters are essential in order to correctly control the aircraft controlled surfaces and calculate the needed corrections to change the aircraft's flight path.

(**Claim 26**) Pages further discloses wherein the step of receiving control parameters at said flight control computer comprises receiving said control parameters via an input different from both an input through which said control instructions are received and an input through which said automatic pilot instructions are received (figure 4, Column 5, lines 47-52).

(**Claim 28**) Pages further discloses comprising the step of transmitting said first plurality of operating commands from said flight control computer to a plurality of control surfaces (Column 5, lines 47-52).

(**Claim 29**) Pages further discloses comprising the step of receiving inertial information at said navigation computer (Column 1, lines 39-52 and Column 5, lines 47-55).

(**Claim 30**) Pages further suggests wherein a delay between a time at which said inertial information is received at said navigation computer and a time at which said first plurality of operating commands is transmitted from said flight control computer to said plurality of control surfaces is minimized (figure 4, Column 1, lines 39-52 and Column 5, lines 47-55).

(10) Response to Argument

A. Introduction

Regarding independent claim 1, the claim only recites, inter alia, a method for operating an aircraft comprising:

"receiving guidance instructions and guidance parameters at a navigation computer;
transmitting automatic pilot instructions from said navigation computer to a flight control computer over a dedicated communication link;
receiving control instructions and said automatic pilot instructions at said flight control computer;
in an automatic pilot mode, generating a first plurality of operating commands based on said automatic pilot instructions at said flight control computer; and
in a manual pilot mode, generating a second plurality of operating commands based on said control instructions at said flight control computer"

Regarding independent claim 13, the claim only recites, inter alia, a method for operating an aircraft comprising:

"transmitting automatic pilot instructions from a navigation computer to a flight control computer over a dedicated link;
receiving control instructions and said automatic pilot instructions at said flight control computer;
in an automatic pilot mode, generating a first plurality of operating commands based on said automatic pilot instructions at said flight control computer; and
in a manual pilot mode, generating a second plurality of operating commands based on said control instructions at said flight control computer."

B. Claims 1, 3, 7-11, 26, and 28-30 are unpatentable over Pages in view of Trikha

Applicant contends, specifically regarding claims 1 and 13, that the applied references do not teach or suggest a navigation computer calculating "automatic pilot instructions" and sending the calculated "automatic pilot instructions" to a flight control computer, which generates a plurality of "operating commands" based on the "automatic

pilot instructions". Further the applied references do not teach or suggest that the "automatic pilot instructions" and the "operating commands" are split into two different computers (Appeal Brief, page 5, lines 18-25). Applicant refers to submitted evidence, "Ask Us – Missile Guidance", as support that the desired path input into a guidance algorithm is not "automatic pilot instructions", but merely, according to the Applicant, "guidance instructions" or "guidance parameters".

The Examiner respectfully disagrees with the interpretation of the applied references and the imposed interpretation of the claim language.

Regarding the claim language, independent claims 1 and 13 only recite that guidance instructions and guidance parameters are received at the navigation computer and automatic pilot instructions are transmitted from the navigation computer to the flight control computer. The specification merely limits the limitation of "guidance instructions" as being indicated by the pilot (Specification, page 2, line 1) and "guidance parameters" as being sent by sensors or an inertial unit that are used to produce automatic pilot instructions (Specification, page 2, lines 1-3). Nowhere in the original disclosure is a more specific definition given for Applicant's language of "guidance parameter" and "guidance instructions". In the applied reference Pages, Figure 4 and the supporting disclosure show a computer 12 receiving inputs from a communications terminal 11, the terminal 11 "enabling the pilot to key in the data pertaining to the mission to be accomplished. Such a mission notably comprises a flight plan..." (column 5, lines 22-27), and navigation instruments 15. In the broadest reasonable interpretation, the claimed language of a navigation computer receiving guidance

instructions and parameters is anticipated by the disclosure of a pilot entering "flight plan defined by a set of geographical points each defined by a position (L, M) possibly associated with a route constraint R" (Pages, column 5, lines 22-27) to a computer 12 and the computer 12 "linked up to the navigational instruments 15 taken on board the aerodyne, so as to receive the navigational data in real time, and notably the position P and heading R of the aerodyne" (Pages, column 5, lines 36-39).

Applicant contends the applied reference Pages does not teach or suggest transmitting automatic pilot instructions from the computer to a flight control computer over a dedicated link. Applicant specifically argues that the information referred to by the Examiner is not considered "automatic pilot instructions" merely guidance parameters or instructions, and refers to the submitted evidence for support. In view of the evidence about Missile Guidance, Applicant argues the phrase "automatic pilot instructions" is synonymous with guidance commands.

The Examiner respectfully disagrees with the interpretation of the claim language argued by the Applicant. The specification only supports the definition of "automatic pilot instructions" as instructions based on the guidance parameters and guidance instructions and used to operate the automatic pilot (Specification, page 2, lines 1-11). There is no further definition or meaning provided for in the original disclosure for the phrase "automatic pilot instructions". Applicant's argument that the claim language "automatic pilot instructions" means guidance commands is not supported by the original disclosure, the submitted evidence about Missile Guidance, or any other submitted external reference. The submitted evidence of Missile Guidance does not

further define the claim language "automatic pilot instructions" as a term of specific meaning in the art, and nor does it specifically define the teachings of Pages as merely "guidance parameters". In the broadest reasonable interpretation, in view of the specification, the reference Pages anticipates the claim language of transmitting automatic pilot instructions from the navigation computer to a flight control computer. Pages specifically teaches that the computer 12 computes the points to be reached on the predetermined path (entered by the pilot) and it is connected to the automatic piloting device 13 to transmit instructions regarding the calculated route, position and route of the next point (shown in figure 2). Pages discloses the automatic pilot device receives these instructions and computes the instructions to be applied to the control surfaces as a function of the position and course, calculated by the computer 12, and control the surface actuators 14 to carry out the instructions computed (column 5, lines 43-55). Figure 4 of Pages schematically teaches the implementation of the device of Pages, which shows a dedicated connection between the computer 12 and the automatic piloting device 13.

Applicant contends that the applied reference Trikha does not teach or suggest the argued deficiencies of Pages, specifically Trikha does not teach a dedicated communication link. The Examiner does not disagree with the Applicant's arguments that Trikha does not teach a dedicated communication link. However, Trikha was not applied to teach that limitation, nor was that suggested. Trikha teaches generating a first plurality of operating commands based on automatic instructions at a flight control

computer and a second plurality of operating commands in a manual mode at a flight control computer (column 3, lines 17-25).

C. Claims 9-11 further are unpatentable and are anticipated by Pages in view of Trikha.

Applicant contends the applied references do not teach transmitting automatic pilot instructions and control instructions correspond to commanded vertical load factor, roll rate, and yaw over a dedicated link (Appeal Brief, page 7, lines 13-19). Applicant contends that Pages does not teach transmitting any automatic pilot instructions to a flight control computer, and even if the parameters are inherent, all the automatic pilot instructions are computed at the automatic piloting device 13 of pages (Appeal Brief, page 7, lines 20-24).

The Examiner respectfully disagrees. Pages teaches transmitting automatic pilot instructions in the broadest reasonable interpretation over a dedicated communication link, including desired changes in the aircraft's flight path (column 5, lines 12-17 and figure 4). The rejection applied stated that it was well known at the time of the invention, to one of ordinary skill in the art, for the instructions and data of vertical load factor, roll rate, and yaw to be used to designate and change a flight path. The data of vertical load factor, roll rate, and yaw are essential to correctly control the aircraft control surfaces and calculate the needed corrections of the actuators to change the aircraft's flight path.

D. Conclusion

The Applicant argues limitations not defined in the claim language and imports limitations from external information. The more narrow definitions argued by the

Applicant are not defined in the specification and are not reflected in the claims. The broadest reasonable interpretations of the claimed limitations are anticipated by the applied prior art of record in a supported combination.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Christine M. Behncke

Conferees:

Meredith Petravick

Thomas G. Black

THOMAS BLACK
SUPERVISORY PATENT EXAMINER